

Amendment to the Claims:

Please amend the claims as follows.

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence having at least 70% about 50% sequence identity to SEQ ID NO:21, and encoding a polypeptide having a phosphatase activity, or (b) and complementary sequences complementary to (a) thereof, and encoding a polypeptide having a phosphatase activity.

Claim 2 (previously presented): The isolated or recombinant nucleic acid of claim 1, comprising a sequence as set forth in SEQ ID NO:21, and sequences complementary thereto.

Claim 3 (currently amended): An isolated or recombinant nucleic acid at least 20 residues in length that hybridizes to a nucleic acid encoding a polypeptide having a phosphatase activity, or its complementary sequence, of claim 1 under conditions comprising of high stringency that include a wash under conditions comprising (a) wash in a solution comprising including 0.1X SSC, 0.5% SDS for 15 to 30 minutes at between the hybridization temperature and 68°C, wherein hybridization is carried out at a temperature of between about 15°C to 25°C below the T_m or (b) wash in a solution comprising 150 mM NaCl, 20 mM Tris hydrochloride, pH 7.8, 1 mM Na₂EDTA, 0.5% SDS, followed by a 30 minute wash in fresh solution, wherein the nucleic acid encoding a polypeptide having phosphatase activity has at least 70% sequence identity to SEQ ID NO:21.

Claim 4 (currently amended): An isolated or recombinant nucleic acid at least 20 residues in length that hybridizes to a nucleic acid encoding a polypeptide having a phosphatase activity, or its complementary sequence, of claim 1 under conditions comprising of moderate stringency that include a wash under conditions comprising including 0.1X SSC, 0.5% SDS at room temperature for 30 minutes to 1 hour, wherein the nucleic acid encoding a polypeptide having phosphatase activity has at least 70% sequence identity to SEQ ID NO:21.

Claim 5 (currently amended): An isolated or recombinant nucleic acid at least 20 residues in length that hybridizes to a nucleic acid encoding a polypeptide having a phosphatase activity, or its complementary sequence, of claim 1 under conditions comprising of low stringency that include a wash under conditions comprising including 2X SSC, 0.1% SDS at room temperature for 15 minutes, wherein the nucleic acid encoding a polypeptide having phosphatase activity has at least 70% sequence identity to SEQ ID NO:21.

Claim 6 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence having at least 70% about 55% sequence identity to a nucleic acid encoding a polypeptide having phosphatase activity and a sequence as set forth in SEQ ID NO:30, or (b) a sequence complementary to (a) as set forth in claim 1 as determined by analysis with a sequence comparison algorithm.

Claim 7 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence having at least 75% about 60% sequence identity to a nucleic acid encoding a polypeptide having a sequence as set forth in SEQ ID NO:30, or (b) a sequence complementary to (a) as set forth in claim 1 as determined by analysis with a sequence comparison algorithm.

Claim 8 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence having at least 80% about 65% sequence identity to a nucleic acid encoding a polypeptide having a sequence as set forth in SEQ ID NO:30, or (b) a sequence complementary to (a) as set forth in claim 1 as determined by analysis with a sequence comparison algorithm.

Claim 9 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence having at least 85% 70% sequence identity to a nucleic acid encoding a polypeptide having a sequence as set forth in SEQ ID NO:30, or (b) a sequence complementary to (a) as set forth in claim 1 as determined by analysis with a sequence comparison algorithm.

Claim 10 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence having at least 90% about 75% sequence identity to a nucleic acid a

encoding a polypeptide having a sequence as set forth in SEQ ID NO:30, or (b) a sequence complementary to (a) as set forth in claim 1 as determined by analysis with a sequence comparison algorithm.

Claim 11 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence having at least 95% 80% sequence identity to a nucleic acid encoding a polypeptide having a sequence as set forth in SEQ ID NO:30, or (b) a sequence complementary to (a) as set forth in claim 1 as determined by analysis with a sequence comparison algorithm.

Claim 12 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence having at least 99% about 85% sequence identity to a nucleic acid encoding a polypeptide having a sequence as set forth in SEQ ID NO:30, or (b) a sequence complementary to (a) as set forth in claim 1 as determined by analysis with a sequence comparison algorithm.

Claim 13 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence having at least 97% 90% sequence identity to a nucleic acid encoding a polypeptide having a sequence as set forth in SEQ ID NO:30, or (b) a sequence complementary to (a) as set forth in claim 1 as determined by analysis with a sequence comparison algorithm.

Claim 14 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence as set forth in SEQ ID NO:30 encoding a polypeptide having phosphatase activity and comprising at least one conservative amino acid substitution, or (b) a sequence complementary to (a) about 95% sequence identity to a nucleic acid as set forth in claim 1 as determined by analysis with a sequence comparison algorithm.

Claim 15 (previously presented): The isolated or recombinant nucleic acid of claim 1, wherein the sequence identity is determined by analysis with FASTA version 3.0t78 with the default parameters.

Claim 16 (currently amended): An isolated or recombinant nucleic acid encoding a polypeptide having phosphatase activity and comprising at least 20 consecutive bases of a sequence as set forth in SEQ ID NO:21, and sequences complementary thereto.

Claim 17 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence encoding a polypeptide having phosphatase activity and having at least 70% ~~about 50%~~ sequence identity to at least 20 consecutive bases of a sequence as set forth in SEQ ID NO:21 as determined by analysis with a ~~sequence comparison algorithm or~~ FASTA version 3.0t78 with the default parameters, or (b) a sequence complementary to (a).

Claim 18 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence encoding a polypeptide having phosphatase activity and having at least 75% ~~about 55%~~ sequence identity to at least 20 consecutive bases of a sequence as set forth in SEQ ID NO:21 as determined by analysis with a ~~sequence comparison algorithm or~~ FASTA version 3.0t78 with the default parameters, or (b) a sequence complementary to (a).

Claim 19 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence encoding a polypeptide having phosphatase activity and having at least 80% ~~about 60%~~ sequence identity to at least 20 consecutive bases of a sequence as set forth in SEQ ID NO:21 as determined by analysis with a ~~sequence comparison algorithm or~~ FASTA version 3.0t78 with the default parameters, or (b) a sequence complementary to (a).

Claim 20 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence encoding a polypeptide having phosphatase activity and having at least 85% ~~about 65%~~ sequence identity to at least 20 consecutive bases of a sequence as set forth in SEQ ID NO:21 as determined by analysis with a ~~sequence comparison algorithm or~~ FASTA version 3.0t78 with the default parameters, or (b) a sequence complementary to (a).

Claim 21 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence encoding a polypeptide having phosphatase activity and having at least 90% ~~about 70%~~ sequence identity to at least 20 consecutive bases of a sequence as set forth

in SEQ ID NO:21 as determined by analysis with a ~~sequence comparison algorithm~~ or FASTA version 3.0t78 with the default parameters, or (b) a sequence complementary to (a).

Claim 22 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence encoding a polypeptide having phosphatase activity having a sequence as set forth in SEQ ID NO:30, or (b) a sequence complementary to (a).

Claim 23 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence encoding a polypeptide having phosphatase activity comprising at least 20 consecutive amino acids of a polypeptide having a sequence as set forth in SEQ ID NO:30, or (b) a sequence complementary to (a).

Claims 24 to 39 (canceled)

Claim 40 (currently amended): A method of producing a polypeptide having phosphatase activity and a sequence as set forth in SEQ ID NO:30, or a sequence encoded by a nucleic acid as set forth in claim 1, comprising introducing the nucleic acid into a host cell under conditions that allow expression of the polypeptide.

Claim 41 (currently amended): A method of producing a polypeptide having phosphatase activity comprising at least 10 amino acids of a sequence as set forth in SEQ ID NO:30, or a polypeptide having phosphatase activity ~~sequence~~ encoded by a nucleic acid as set forth in claim 1, comprising introducing the nucleic acid encoding the polypeptide, operably linked to a promoter, into a host cell under conditions that allow expression of the polypeptide.

Claims 42 to 66 (canceled)

Claim 67 (currently amended): A nucleic acid probe for identifying or isolating a nucleic acid encoding a polypeptide having phosphatase activity comprising an oligonucleotide from about 10 to 50 nucleotides in length and having an area of at least ~~[[10]]~~ 20 contiguous nucleotides that has at least 70% ~~about 50%~~ sequence identity to a nucleic acid target region comprising a nucleic acid sequence as set forth in SEQ ID NO:21, or its complementary

sequence, and which hybridizes to the nucleic acid target region ~~under moderate to highly stringent conditions~~ to form a detectable target:probe duplex under hybridization conditions comprising a wash under conditions comprising 0.1X SSC, 0.5% SDS at room temperature for 30 minutes to 1 hour.

Claim 68 (previously presented): The probe of claim 67, wherein the oligonucleotide comprises a DNA or an RNA.

Claim 69 (currently amended): The probe of claim 67, wherein the area has at least 25 contiguous nucleotides ~~which has at least 55% sequence identity to the nucleic acid target region.~~

Claim 70 (currently amended): The probe of claim 67, wherein the area has at least 30 contiguous nucleotides ~~which has at least 60% sequence identity to the nucleic acid target region.~~

Claim 71 (currently amended): The probe of claim 67, wherein the area has at least 35 contiguous nucleotides ~~which has at least 65% sequence identity to the nucleic acid target region.~~

Claim 72 (currently amended): The probe of claim 67, wherein the area has at least 50 contiguous nucleotides ~~which has at least 70% sequence identity to the nucleic acid target region.~~

Claim 73 (currently amended): The probe of claim 67, wherein the area ~~which~~ has at least 75% sequence identity to the nucleic acid target region.

Claim 74 (currently amended): The probe of claim ~~[[67]]~~ 73, wherein the oligonucleotide ~~comprises a sequence which is~~ area has at least 80% sequence identity to the nucleic acid target region.

Claim 75 (currently amended): The probe of claim ~~[[67]]~~ 74, wherein the area ~~which~~ has at least 85% sequence identity to the nucleic acid target region.

Claim 76 (currently amended): The probe of claim ~~[[67]]~~ 75, wherein the ~~oligonucleotide comprises a sequence which is~~ area has at least 90% sequence identity to the nucleic acid target region.

Claim 77 (currently amended): The probe of claim ~~[[67]]~~ 76, wherein the area ~~which~~ has at least 95% sequence identity to the nucleic acid target region.

Claim 78 (currently amended): The probe of claim 67, wherein the area ~~which~~ is fully complementary to the nucleic acid target region.

Claim 79 (previously presented): The probe of claim 67, wherein the oligonucleotide is 15-50 bases in length.

Claim 80 (previously presented): The probe of claim 67, wherein the probe further comprises a detectable isotopic label.

Claim 81 (previously presented): The probe of claim 67, wherein the probe further comprises a detectable non-isotopic label selected from the group consisting of a fluorescent molecule, a chemiluminescent molecule, an enzyme, a cofactor, an enzyme substrate, and a hapten.

Claim 82 (currently amended): A nucleic acid probe for identifying or isolating a nucleic acid encoding a polypeptide having phosphatase activity comprising an oligonucleotide from about 15 to 50 nucleotides in length and having an area of at least about 20 contiguous nucleotides that ~~[[is]]~~ has at least 90% sequence identity complementary to a nucleic acid target region of the nucleic acid sequence as set forth in SEQ ID NO:21, and which hybridizes to the nucleic acid target region ~~under moderate to highly stringent conditions~~ to form a detectable target:probe duplex under hybridization conditions comprising a wash under conditions comprising (a) 0.1X SSC, 0.5% SDS at room temperature for 30 minutes to 1 hour, or (b) wash in a solution comprising 150 mM NaCl, 20 mM Tris hydrochloride, pH 7.8, 1 mM Na₂EDTA, 0.5% SDS, followed by a 30 minute wash in fresh solution.

Claim 83 (currently amended): A nucleic acid probe for identifying or isolating a nucleic acid encoding a polypeptide having phosphatase activity comprising an oligonucleotide from about 15 to 50 nucleotides in length and having an area of at least about 20 contiguous nucleotides that ~~[[is]]~~ has at least 95% sequence identity complementary to a nucleic acid target region of the nucleic acid sequence as set forth in SEQ ID NO:21, and which hybridizes to the nucleic acid target region ~~under moderate to highly stringent conditions~~ to form a detectable target:probe duplex under hybridization conditions comprising a wash under conditions comprising (a) 0.1X SSC, 0.5% SDS at room temperature for 30 minutes to 1 hour, or (b) wash in a solution comprising 150 mM NaCl, 20 mM Tris hydrochloride, pH 7.8, 1 mM Na₂EDTA, 0.5% SDS, followed by a 30 minute wash in fresh solution.

Claim 84 (currently amended): A nucleic acid probe for identifying or isolating a nucleic acid encoding a polypeptide having phosphatase activity comprising an oligonucleotide from about 15 to 50 nucleotides in length and having an area of at least about 20 contiguous nucleotides that ~~[[is]]~~ has at least 97% sequence identity complementary to a nucleic acid target region of the nucleic acid sequence as set forth in SEQ ID NO:21, and which hybridizes to the nucleic acid target region ~~under moderate to highly stringent conditions~~ to form a detectable target:probe duplex under hybridization conditions comprising a wash under conditions comprising (a) 0.1X SSC, 0.5% SDS at room temperature for 30 minutes to 1 hour, or (b) wash in a solution comprising 150 mM NaCl, 20 mM Tris hydrochloride, pH 7.8, 1 mM Na₂EDTA, 0.5% SDS, followed by a 30 minute wash in fresh solution.

Claim 85 (previously presented): A nucleic acid probe for isolation or identification of phosphatase genes having a sequence which is the same as or fully complementary to a sequence as set forth in SEQ ID NO:21.

Claim 86 to 92 (canceled)

Claim 93 (previously presented): The isolated or recombinant nucleic acid of claim 3, wherein the nucleic acid is at least 25 residues in length.

Claim 94 (previously presented): The isolated or recombinant nucleic acid of claim 93, wherein the nucleic acid is at least 30 residues in length.

Claim 95 (previously presented): The isolated or recombinant nucleic acid of claim 94, wherein the nucleic acid is at least 35 residues in length.

Claim 96 (previously presented): The isolated or recombinant nucleic acid of claim 95, wherein the nucleic acid is at least 40 residues in length.

Claim 97 (previously presented): The isolated or recombinant nucleic acid of claim 96, wherein the nucleic acid is at least 50 residues in length.

Claim 98 (previously presented): The isolated or recombinant nucleic acid of claim 97, wherein the nucleic acid is at least 75 residues in length.

Claim 99 (previously presented): The isolated or recombinant nucleic acid of claim 98, wherein the nucleic acid is at least 100 residues in length.

Claim 100 (previously presented): The isolated or recombinant nucleic acid of claim 99, wherein the nucleic acid is at least 150 residues in length.

Claim 101 (previously presented): The isolated or recombinant nucleic acid of claim 17, wherein the nucleic acid is at least 25 residues in length.

Claim 102 (previously presented): The isolated or recombinant nucleic acid of claim 101, wherein the nucleic acid is at least 30 residues in length.

Claim 103 (previously presented): The isolated or recombinant nucleic acid of claim 102, wherein the nucleic acid is at least 35 residues in length.

Claim 104 (previously presented): The isolated or recombinant nucleic acid of claim 103, wherein the nucleic acid is at least 40 residues in length.

Claim 105 (previously presented): The isolated or recombinant nucleic acid of claim 104, wherein the nucleic acid is at least 50 residues in length.

Claim 106 (previously presented): The isolated or recombinant nucleic acid of claim 105, wherein the nucleic acid is at least 75 residues in length.

Claim 107 (previously presented): The isolated or recombinant nucleic acid of claim 106, wherein the nucleic acid is at least 100 residues in length.

Claim 108 (previously presented): The isolated or recombinant nucleic acid of claim 107, wherein the nucleic acid is at least 150 residues in length.